

# REGIONAL OVERVIEW

## **Ecosystem Conservation and Restoration** *Identifying drivers of land use change*



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Capacity-building workshop for Central, South and East Asia on ecosystem conservation and restoration to support achievement of the Aichi Biodiversity Targets. Jeju, RoK, 14-18 July 2014





# OBJECTIVE & OUTLINE

## Objective

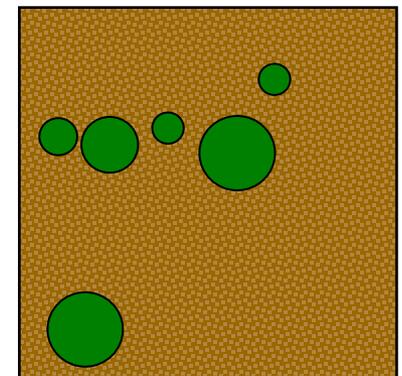
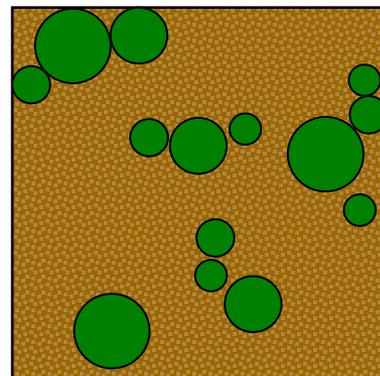
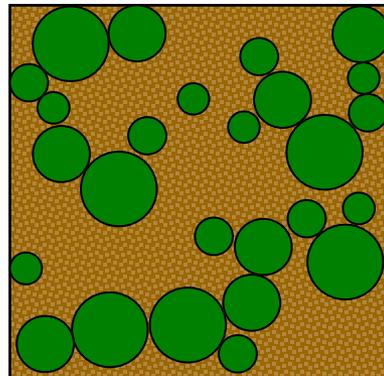
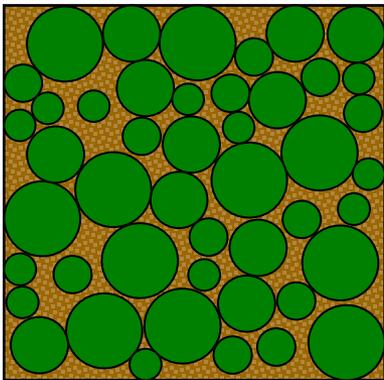
- Provide overview on larger-scale drivers that determine land use change
  - Consider such drivers to designing and implementing conservation & restoration strategies
  - Leverage positive drivers, work around negative ones

## Outline

- State forests and forestry in the region
- Analysis of drivers of deforestation and degradation in Asia-Pacific
- Future scenarios and implications for conservation and restoration

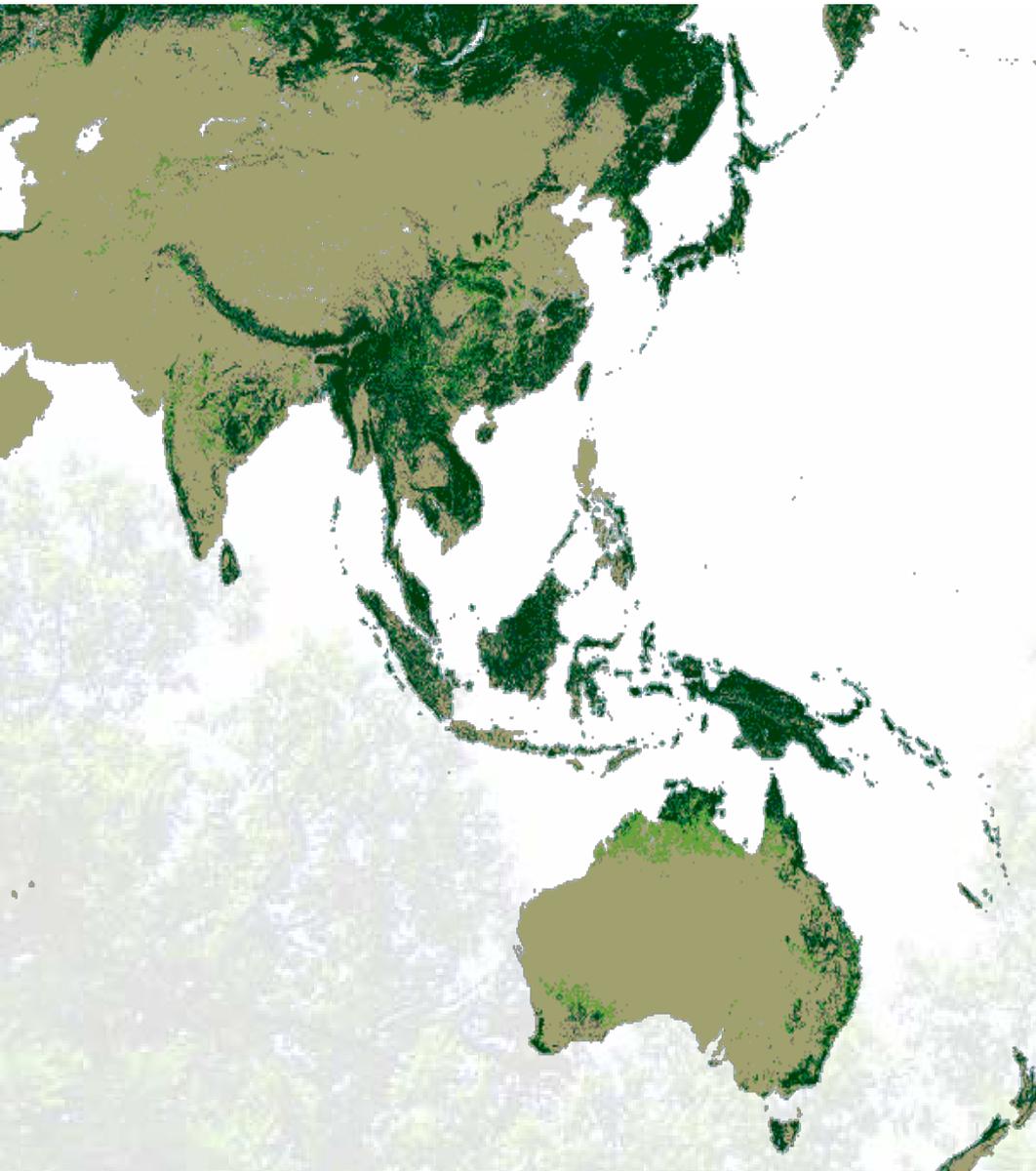
- **Forest:** Land spanning more than 0.5 ha with trees higher than 5 m and a canopy cover of more than 10%, or trees able to reach these thresholds in situ. It does not include land that is predominantly under agricultural or urban land use. (FRA 2015)
  - Fails to capture qualitative forest values
  - Forest degradation is difficult to identify

Representations of 70, 40, 20 and 10% canopy cover – all of which constitute “forest”





# STATE OF FORESTS AND FORESTRY (1)



26%

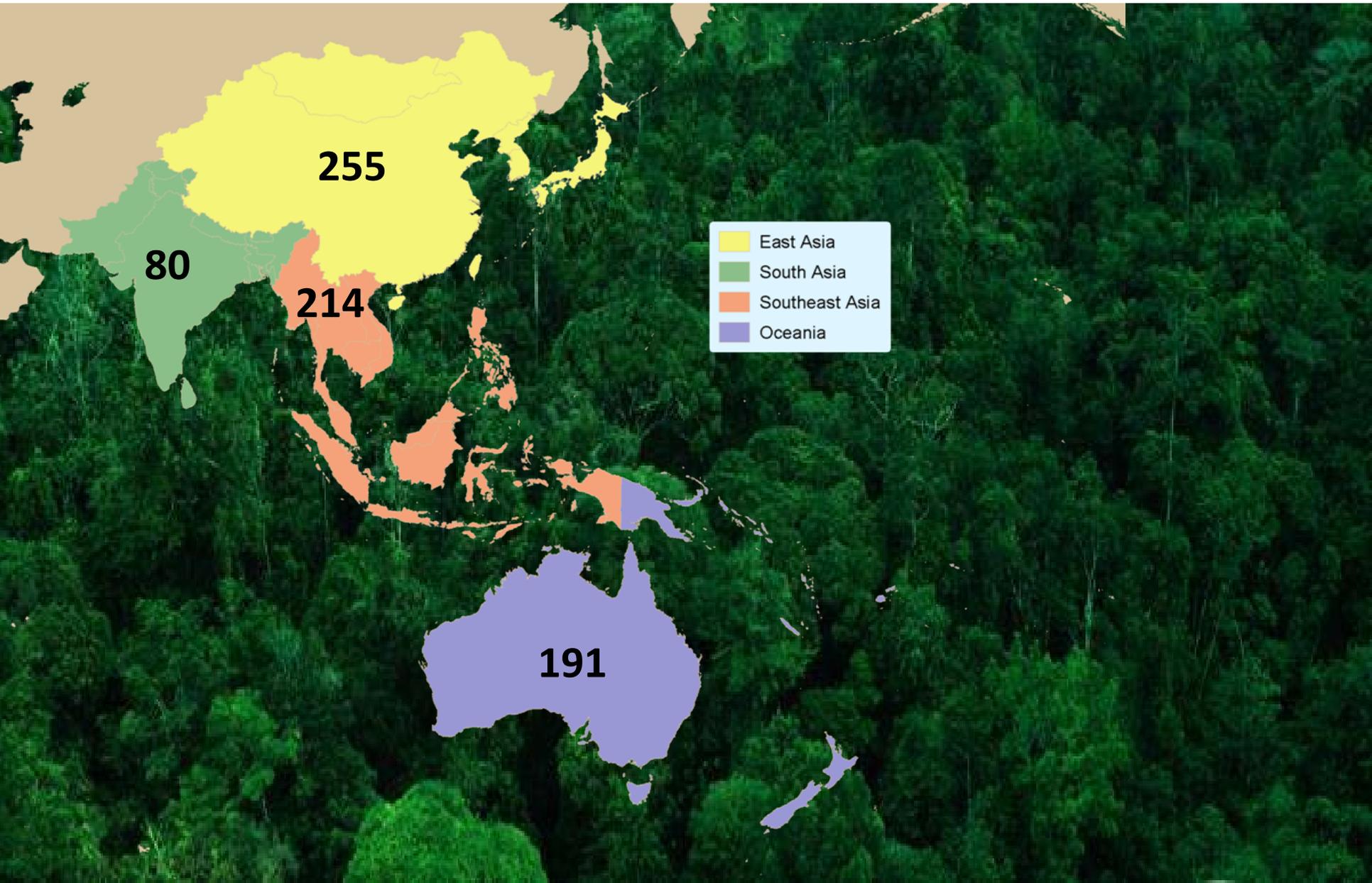
OF TOTAL LAND AREA

740,000,000 ha

**But only 0.2 ha per person**



# STATE OF FORESTS AND FORESTRY (2)





## STATE OF FORESTS AND FORESTRY (3)

- Primary forests comprise...

**19% OF ASIA-PACIFIC FORESTS**

**34% OF THE WORLD'S FORESTS**



## STATE OF FORESTS AND FORESTRY (4)

- Other naturally regenerated forests comprise...

**65% OF ASIA-PACIFIC FORESTS**

**60% OF THE WORLD'S FORESTS**



## STATE OF FORESTS AND FORESTRY (5)

- Planted forests comprise...

**16% OF ASIA-PACIFIC FORESTS**

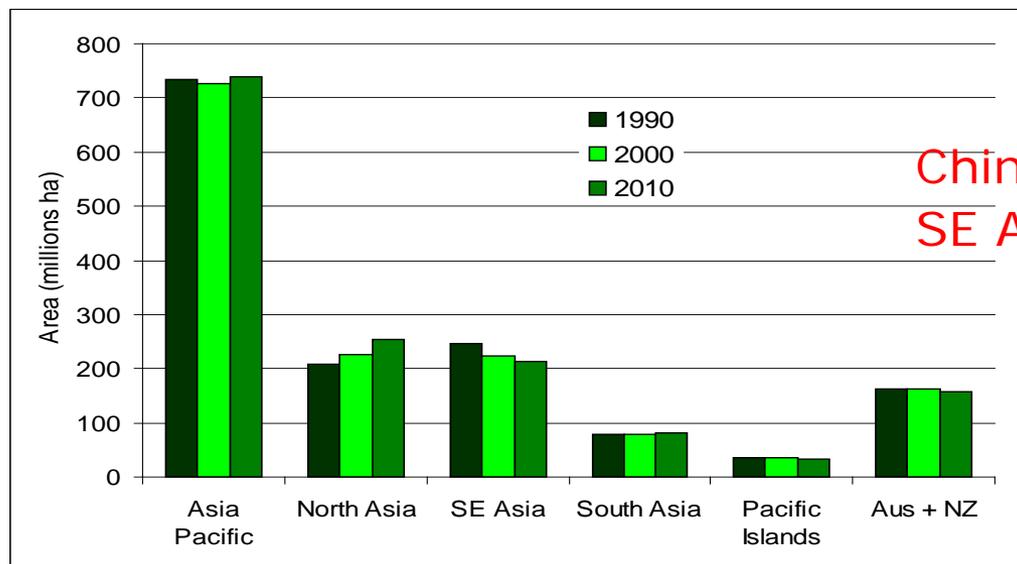
**7% OF THE WORLD'S FORESTS**

**65% OF WORLD'S PLANTED FORESTS ARE  
LOCATED IN AP BUT PRODUCTIVITY REMAIN LOW**



# STATE OF FORESTS AND FORESTRY (6)

- Positive trend in forest area primarily due to reforestation in China
- Deforestation remains high, particularly in SE Asia
- Forest degradation – the hidden problem
- Protected areas remain stable, management problematic, continue to be the mainstay of biodiversity conservation
- Slow progress towards SFM due to lack of financial and institutional support jeopardizing natural forests and biodiversity



China: +50 m ha  
SE Asia: -33 m ha

- 'Peak timber' has passed and cultivation of other crops has proved more profitable than natural forest management
- Source of wood changing from tropical countries to Russia, Australia, NZ and S. Africa.
- Forest policies revised but implementation lacking
- Forest ownership remains contested
- Increased interest in forest ecosystem services not yet matched by willingness to pay
- REDD to the rescue?





## DRIVERS OF CHANGE

**What happens to forests and forestry is determined to a large extent by what happens outside the forestry sector and by larger societal changes.**



# DRIVERS OF DEFORESTATION / DEGRADATION

**Driver:** Any natural or human-induced factor that directly or indirectly causes a change in an ecosystem (Millennium Ecosystem Assessment)

## Direct drivers

- Physical and biological drivers:
- Climate variability and change
  - Plant nutrient use (*nutrient application to agricultural systems*)
  - **Land conversion**
  - Biological invasions and diseases

**Drivers interact** across spatial, temporal, and organizational scales

In many cases, **multiple direct drivers work in combination.**

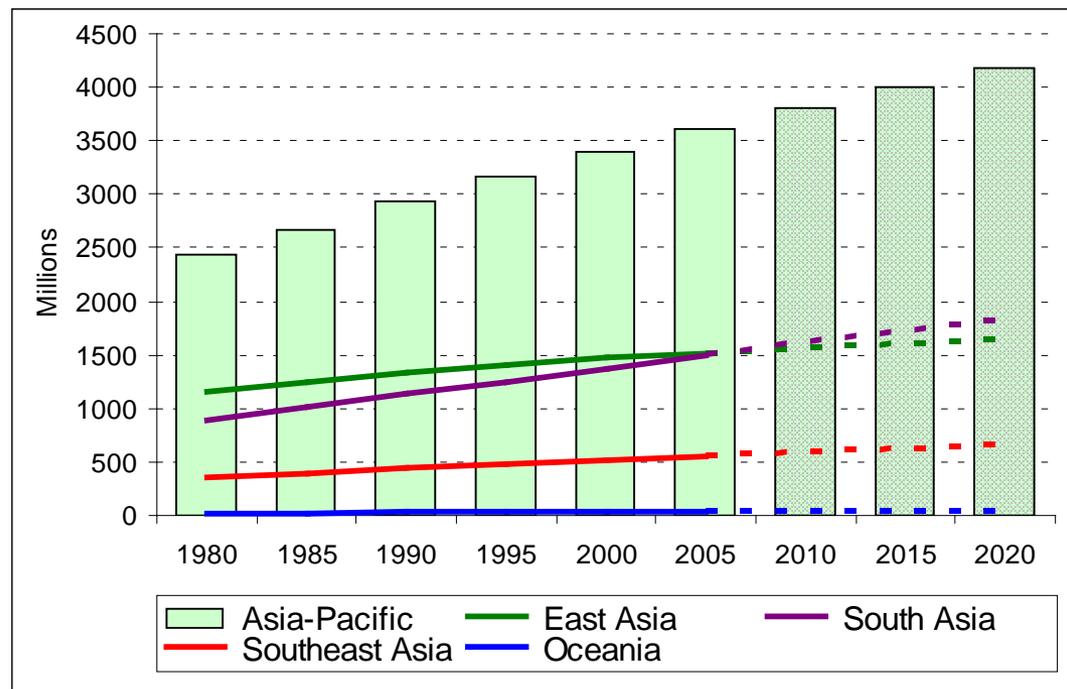
## Indirect drivers

- Demographic drivers  
*Population dynamics and primary determinants of population change: fertility, mortality, and migration*
- Economic drivers  
*Consumption, production and globalization*
- Sociopolitical drivers  
*Policies, regulations, governance, people's attitudes and demands*
- Cultural and religious drivers
- Scientific and technological drivers



# DRIVERS OF CHANGE – DEMOGRAPHY

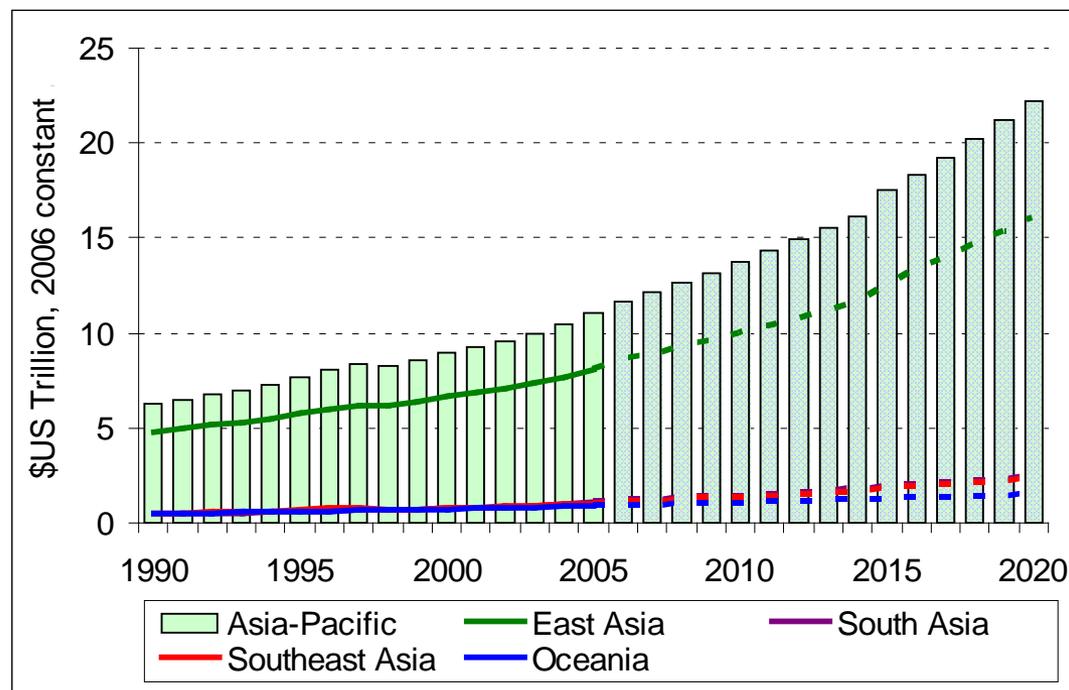
- Increasing population
- Most increases in densely populated countries
- Age structures changing
- Rapid urbanization: 47% of population urban by 2020
- Outmigration and overseas remittances
  - Reduce pressure on land and capacity to extract forest resources
  - Intensity agriculture and educate children





# DRIVERS OF CHANGE – ECONOMY

- High growth rates increasing the demand for food, fibre and fuel
- Poverty rates will likely decline but the number of poor will remain high
- Shift away from agriculture to industry and services
- Rate of deforestation linked to global commodity prices
- Investment in forestry focusing on pulpwood production





# DRIVERS OF CHANGE – POLICIES AND GOVERNANCE

- Broad and diversified institutional arrangements
- Demands for participation in public policy and decision-making
- Greater democracy, political accountability and transparency
- Decline in governance standards – low scores for corruption, accountability, and regulatory quality





# DRIVERS OF CHANGE – ENVIRONMENTAL CONCERNS

- Protection and conservation roles of forest increasingly recognized
  - Climate change
  - Biodiversity
  - Natural disasters
- Local and national issues and actions
- Global and regional environmental drivers:
  - International commitments and the outcomes of climate change negotiations
  - Pressure from stakeholders in the “global forest resource”
  - Import restrictions to ensure timber legality





# DRIVERS OF CHANGE – AGRICULTURE

- Agricultural expansion is the primary reason for forest conversion in many countries
- A few agricultural crops account for a large proportion of deforestation
- Rubber plantations are expanding in forest areas
- Oil palm plantations set to spread significantly



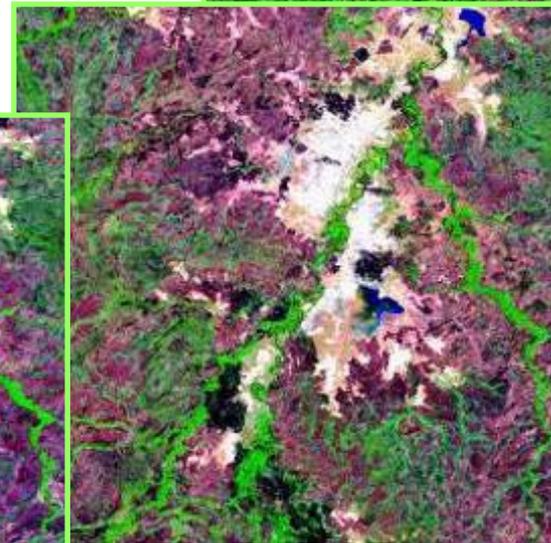
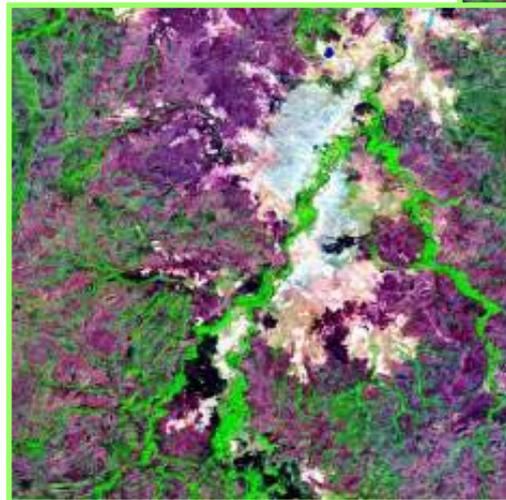
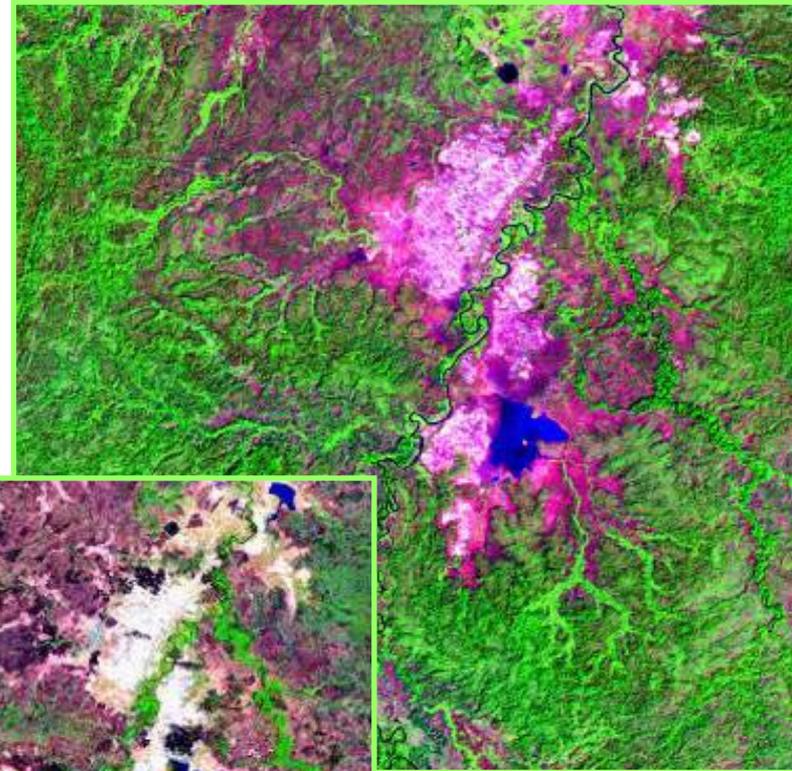
- Infrastructure development associated with economic expansion and extraction of natural resources
- Impacts greatest in less developed countries
- Significant impacts on forests by increasing access to and land value
- Dam development commonly associated with forest loss





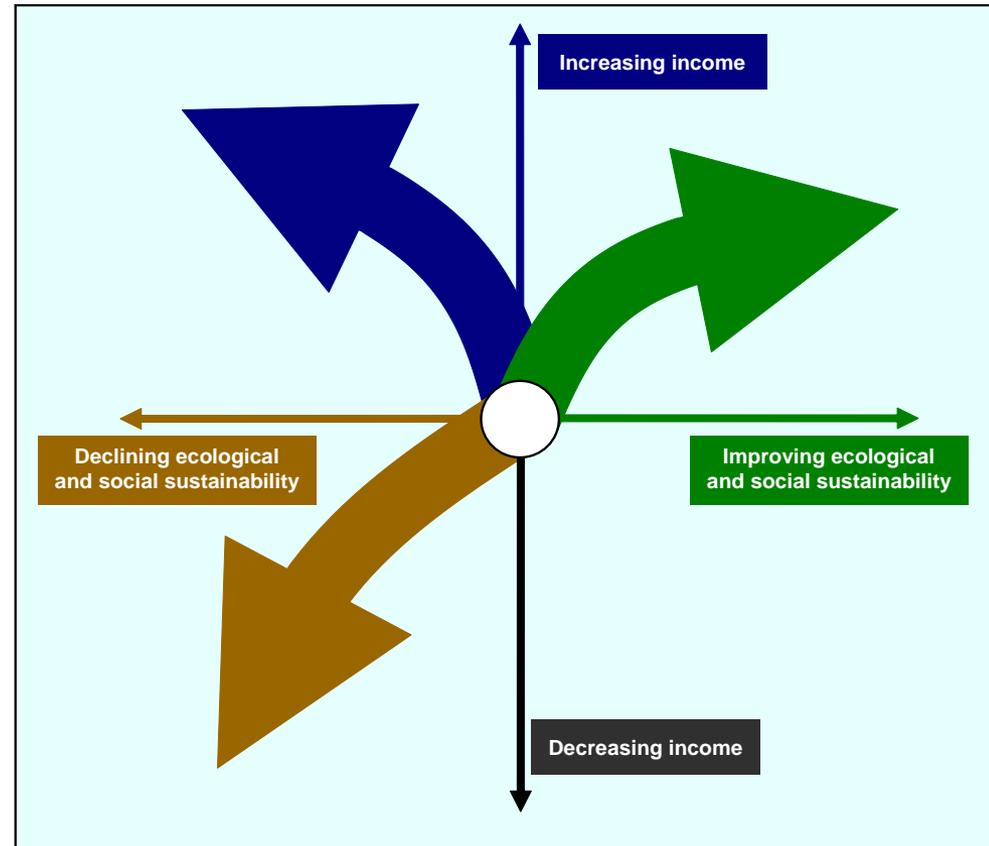
# DRIVERS OF CHANGE – SCIENCE AND TECHNOLOGY

- Remote sensing and GIS
- Information and communication technologies
- Productivity enhancement
- Processing technologies



## Three scenarios

- High economic growth and recovery: the “boom” scenario
- Low economic growth and stagnation: the “bust” scenario
- Social and ecological stability: the “Green economy” scenario



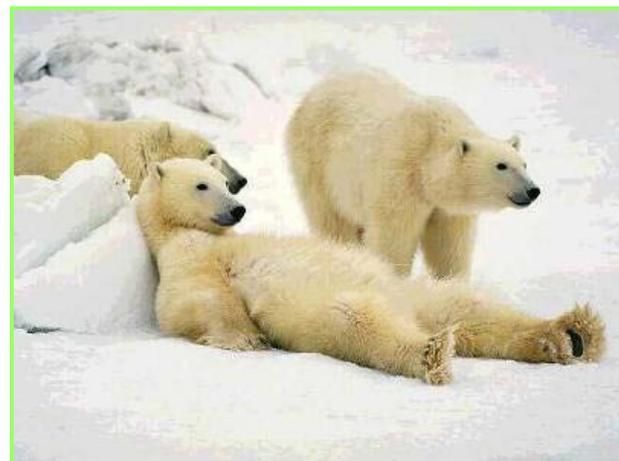
- High economic growth
- Middle class grows, increasing demand for goods and services
- Globalization accelerates foreign direct investments, trade, travel and access to technology



## Implications for forests:

- Forest area increases in emerging economies, but declines in forest-rich developing countries
- Demands for wood and wood products increase significantly
- Greater funding availability for environmental protection

- Prolonged sluggishness of national economies
- High dependence on land as a source of income persists
- Slow growth of manufacturing and services sectors



## Implications for forests:

- Reduced capacity to invest in sustainable forest management
- Increased dependence on agriculture, with potentially more forest clearance
- ...but reduced demand for wood and wood products lessens pressure of industrial forestry



# THE 'GREEN ECONOMY' SCENARIO

- Balanced growth encompassing social and ecological sustainability
- Improved efficiency in the use of energy and raw materials
- Improved land and water management, higher productivity and focus on conserving biological diversity



## Implications for forests:

- Increasing areas and improved quality of forests
- Increased focus on recycling and reuse of wood products
- Focus on ecosystem services
- Certification and fair trade practices expand

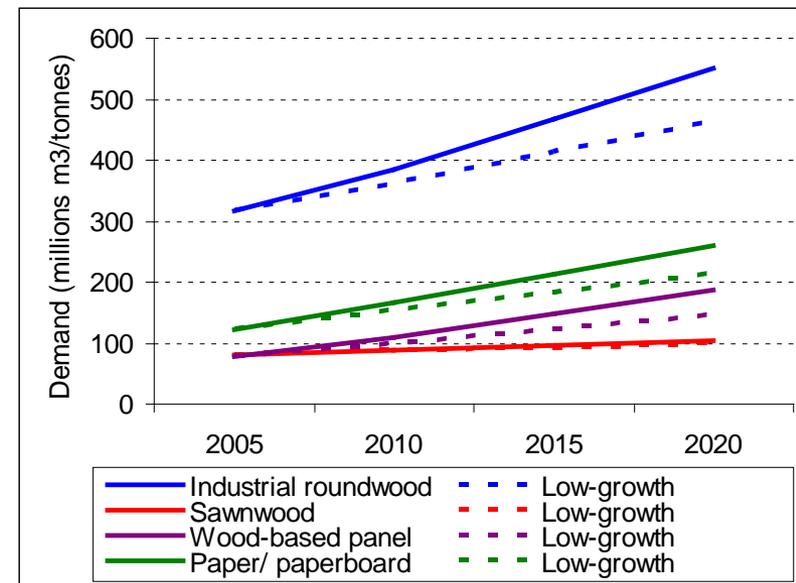
- Forest area will stabilize regionally, but losses in Southeast Asia will continue
- Mining, infrastructure and industrial crop expansion will be the major causes of deforestation
- Forest degradation will remain a major problem especially in densely populated, low-income countries
- Increasing threats from invasive species
- Sustainable management of natural forests will remain as elusive as now





# 2020 OUTLOOK

- Most wood will come from planted forests and farm-grown trees
- Increasing demand for wood, driven by China, India and Indonesia
- No major constraints in wood supplies
- Conservation and environmental services
  - No major problems in the developed economies
  - Low income countries will face major challenges
- REDD - Unlikely to make a serious dent in the next 10 years





**Thank you for your kind attention**

